National Measurement & Regulation Office

**UK/0126/0131**

**MI-006**

# EC type-approval certificate UK/0126/0131 Revision 2

Issued by:

**The National Measurement and Regulation Office**
**Notified Body Number 0126**

In accordance with the requirements of the Measuring Instruments (Automatic Catchweighers) Regulations 2006 (SI 2006/1257) and the Measuring Instruments (Non-Prescribed Instruments) Regulations 2006 (SI 2006/1270) which implement, in the United Kingdom, Council Directive 2004/22/EC, this EC type-examination certificate has been issued to:

**Digi Europe Ltd**
**Digi House**
**Rookwood Way**
**Haverhill**
**Suffolk, CB9 8DG**
**United Kingdom**

In respect of an automatic catchweighing instrument designated the LI-700E (weight/weight-price labeller) or the CWL-700E (checkweigher), and having the following characteristics:

| | | | |
|---|---|---|---|
| Maximum capacity (Max) | 3 kg | 6 kg | 10 kg |
| Minimum capacity (Min) | 40 g | 40 g | 100 g |
| Scale interval (e =) | 2 g | 2 g | 5 g |
| Accuracy class | Y(a) and XIII(1) | | |

The necessary data (principal characteristics, alterations, securing, functioning etc) for identification purposes and conditions (when applicable) are set out in the descriptive annex to this certificate.

This revision replaces previous versions of the certificate.

**Issue Date:** **03 August 2015**
**Valid Until:** **07 August 2022**
**Reference No:** **TS0101/0016**

**P R Dixon**
**Certification Services Director**
***For and on behalf of the Chief Executive***

UKAS PRODUCT CERTIFICATION
0135

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# Descriptive Annex

## 1 NAME AND TYPE OF INSTRUMENT

This pattern of an automatic catchweigher, designated the LI-700E, operates as an automatic weight or weight/price labeller (Category Y) and as an automatic checkweigher (category X). The instrument is designated the CWL-700E when configured to operate only as an automatic checkweigher (category X).

The instrument comprises a self-indicating and price-computing weighing machine with associated thermal label printer and mechanical handling facilities. It is designed to weigh packs statically, at a constant rate of operation.

Pricing, pack and labelling information is stored in files called PLUs selectable by the operator for the commodity or labels being processed. Labels are printed for the above transaction data and are applied to the packs automatically.

The instrument provides indications of:

- price per unit weight from £0.01 to £9999.99 per kg by £0.01 intervals
- price-to-pay from £0.01 to £9999.99 by £0.01 intervals (rounded to the nearest 1p, with 0.5p rounded up)

The instrument shall not be used for direct sales to the public.

## 2 FUNCTIONAL DESCRIPTION

### 2.1 Mechanical

**2.1.1** The LI-700E comprises a weigher and a thermal label printer (labeller). The weigher and labeller are mounted on single fabricated floor standing stainless steel frame on adjustable stainless steel feet.

**2.1.2** On the frame are mounted the scale conveyor and any additional in-feed and out-feed conveyors, any number may be used. Various conveyor sizes may also be used. In-feed guides may be fitted which are adjustable. Photocells are used for pack detection. Figure 1 shows an instrument fitted with 3 conveyors.

**2.1.3** The control cabinet is located behind the conveyors, and houses the electronics and electrical control elements of the instrument as well as the display unit, which consists of a colour LCD touch screen and the PC main board (Figure 2).

**2.1.4** The weighing system comprises a scale conveyor mounted on a load cell. When the pack triggers the scale conveyor sensor the scale conveyor stops and the pack weight is determined statically. Once a stable weight has been determined by the A/D unit the scale conveyor restarts automatically and the pack is transported on to the labelling conveyor. The operating speed of the conveyor is fixed by the manufacturer with a maximum speed of 40m/min.

**2.1.5** The printer mechanism comprises the print head, label feed and applicator. The printer mechanism is mounted on the frame and located above the out-feed conveyor and has adjustable height, lateral and rotational position. It contains the hardware necessary to print, feed and apply self-adhesive labels from a reel. The label application is powered by pneumatics, with a pressure regulator mounted on the frame of the weigher. The label applicator contains a vacuum device which is used to hold the label in place on the applicator, the label is then placed onto the pack as it reaches the required position. The

Instrument may be configured for the conveyors to operate with either a left to right flow direction or a right to left flow direction.

**2.1.6** Load cell

The load cell is an HBM SP4M C3MR, capacity as per table 3.1.

## 2.2 Electrical

The LI-700E weigher comprises the following:

- Aplex Technology combined PC and LCD display type AHM-6127A
- Teraoka TPB-03484 A/D converter
- TDK Lambda power supply unit type LS75 and UPS backup type Pico UPS-100

## 2.3 Devices

The instrument is provided with the following devices:

- Initial zero-setting device (≤ 4 % of Max)
- Semi-automatic zero-setting device (≤ 4 % of Max)
- Automatic zero-setting after time interval (≤ 107 min)
- Zero-tracking device
- Preset tare device
- Semi-automatic tare weighing device (subtractive)
- Zero indication
- Calibration not accessible to user
- Price computation
- PLUs

# 3 TECHNICAL DATA

**3.1** The LI-700E has the following technical characteristics:

| | | | |
|---|---|---|---|
| Maximum capacity (Max) | 3 kg | 6 kg | 10 kg |
| Scale interval (e =) | 2 g | | 5 g |
| Minimum capacity (Min) | 20 e | | |
| Tare (T) | ≤ - 50% Max | | |
| Load cell $E_{max}$ | 15 kg | | 20 kg |
| Maximum operating rate | ≤ 45 packs/min | | |
| Maximum conveyor speed | ≤ 40.0 m/min | | |
| Climatic environment | 0 to 40 °C<br>Non-condensing (closed) | | |
| Electromagnetic environments | E1 and E2 | | |
| Power supply | 100-240 V a.c. / 50-60 Hz single phase | | |
| Label applicator pneumatic pressure | 4-6 bars | | |
| Accuracy class | Y(a) and XIII(1) | | |

## 3.2 Documentation and drawings

| | |
|---|---|
| TA-LI700e GA-1-0 | LI-700E General arrangement (3 conveyors) |
| TA-LI700e GA-2-0 | LI-700E Scale Base Assembly |
| TA-LI700e GA-5-0 | LI-700E Control Box Assembly Details |
| TA-LI700e GA-6-0 | LI-700E Block Diagrams (2 sheets) |
| TA-LI700e GA-4-0 | Rating/serial plate and its location |
| TA-LI700e GA-3-0 | Sealing of A/D assembly in control box |

| | |
|---|---|
| LI-700e UM-01 | LI-700E User Manual (Issue 1) |
| LI-700e SM-01 | LI-700E Service Manual (Issue 1) |

### 3.3 Software

**3.3.1** The software version number is 2.xx.xx.xxxx which is displayed during the power-up sequence of the instrument. The legal metrological code is contained within a dll file, DPS700.dll. The dll file is protected by a checksum which is also displayed during the power-up sequence. Any modification in the dll file will result in a change in the checksum value and an error being detected. Access to the Windows operating system is prevented by password protection.

**3.3.2** In addition to the weight and weight-price labelling modes of operation, the instrument is provided with non-weighed items (fixed price and fixed weight) and average weight modes of operation. The mode of operation is set in the products' PLU, only available at supervisor level.

**3.3.3** The parameters (nominal weight and tolerance limits) used by the average weight mode are calculated by the system and cannot be modified. An average weight label contains the nominal weight with the associated units of measurement, the 'e' symbol, and a fixed price. Any pack that falls outside of the average weight limits is not labelled (i.e. rejected). The instrument is designated the CWL-700E when configured to operate only as a checkweigher.

## 4 PERIPHERAL DEVICES AND INTERFACES

### 4.1 Interfaces

The instrument may have the following interfaces:

- USB
- Ethernet

### 4.2 Peripheral devices

The instrument may be connected to any peripheral device that has been issued with a test certificate or parts certificate by a Notified Body responsible for Annex B (MI-006) under Directive 2004/22/EC in any Member State and bears the CE marking of conformity to the relevant directives; or

A peripheral device without a test certificate may be connected under the following conditions:

- it bears the CE marking for conformity to the EMC Directive;
- it is not capable of transmitting any data or instruction into the weighing instrument, other than to release a printout, checking for correct data transmission or validation;
- it prints weighing results and other data as received from the weighing instrument without any modification or further processing; and
- it complies with the applicable requirements of Paragraph 8.1 of Annex I.

## 5 APPROVAL CONDITIONS

The certificate is issued subject to the following conditions:

### 5.1 Legends and inscriptions

The instrument bears the following legends:

'CE' marking

Supplementary metrology marking
Notified body identification number
Accuracy class
Serial number
Type designation
Manufacturers mark or name
Certificate number
Power supply
Pneumatic pressure

**5.2 Printing (weigh/weigh-price labeller)**

Editing of the printed labels format is performed via the “Dr Label” program, its access is restricted to Manager or Supervisor levels. The labels must bear the weight, unit price and price to pay (when applicable), with associated units. Currency units must be in accordance with the country of use.

When tare or preset tare values are printed, they must be identified as such, and net and/or gross weights should be clearly identified when printed with a tare value. Net weights do not require such identification when the tare value is not printed.

Printing below Min is not allowed.

**5.3** The instrument shall be fitted with a level indicator or be permanently installed.

## 6 LOCATION OF SEALS AND VERIFICATION MARKS

**6.1** The ‘CE’ marking, supplementary metrology marking and certificate number are located on the side of the control cabinet (Figures 3 and 4). The CE mark shall be impossible to remove without damaging it. The data plate shall be impossible to remove without it being destroyed.

**6.2** The markings and inscriptions shall fulfil the requirements of Paragraph 9 of Annex I of the Directive 2004/22/EC.

**6.3** Access to metrological settings is secured by a switch on the A/D board. The switch is protected by a metallic cover secured by a tamper-evident seal (Figure 5).

**6.4** Access to the static calibration facility is password protected. The instrument increments a calibration value (audit count number) each time it is re-calibrated. The value is recorded on a tamper evident label on the outside of the metal case protecting the A/D board. The current audit count number can be displayed via the About key in the Main Menu screen. Details of the secure metrological parameters can be displayed via the “Audit Query“ programme in the Windows operating screen.

**6.5** Components that may not be dismantled or adjusted by the user (load cell connection) will be secured by either a wire and seal or tamper evident label and securing mark. The securing mark may be either:

- a mark of the manufacturer and/or manufacturer’s representative, or
- an official mark of a verification officer.

## 7 ALTERNATIVES

**7.1** Having the instrument fitted with the DEL type 700 series labeller (figure 6).

**7.2** Having the instrument fitted with the DEL type LC series labeller (figure 7).

**7.3** Having different metrological characteristics (Max and e =) to those specified in table 3.1, provided a compatibility of modules is established.

The technical data for the compatibility of modules is as follows:

| | |
|---|---|
| Maximum number of scale intervals | 6000 |
| Load cell excitation voltage | 3.3 Vdc |
| Minimum load cell impedance | 43 Ω |
| Maximum load cell impedance | 1100 Ω |
| Minimum input voltage per verification scale interval | 0.88 μV |
| Measuring range minimum voltage | 0 mV |
| Measuring range maximum voltage | 40 mV |
| Fraction of maximum permissible error | $P_{ind}$ = 0.5 |
| Load cell cable (from indicator to load cell junction box) | Maximum length = 1.5 m |

Any compatible load cell(s) may be used providing the following conditions are met:

- There is a respective OIML Certificate of Conformity (R60) or a test certificate (EN45501) issued for the load cell by a Notified Body responsible for type examination under Directive 2009/23/EC.
- The certificate contains the load cell types and the necessary load cell data required for the manufacturer's declaration of compatibility of modules (WELMEC 2, Issue 5, 2009, No 11), and any particular installation requirements. A load cell marked NH is allowed only if humidity testing to EN45501 has been conducted on this load cell.
- The compatibility of the load cells and indicator is established by the manufacturer by means of the compatibility of modules calculation, contained in the above WELMEC 2 document, at the time of verification or declaration of EC conformity of type.
- The loadcell transmission must conform to one of the examples shown in the WELMEC Guide 2.4, "Guide for Load cells".

**7.4** The instrument may be used in "Manual" mode, which is outside the scope of this approval. When the instrument is in "Manual" mode it is operating as a non-automatic weighing instrument and so must comply with the requirements of the Non-automatic Weighing Instruments Directive 2009/23/EC and bear the relevant conformity assessment markings. This mode of operation is fully described in EC Type Approval Certificate UK 2930.

A protected parameter is set at initial verification to allow the operation in automatic mode only, automatic and manual modes, or manual mode only.

**7.5** Having a modified software, designated World View (Figure 8).

The legally relevant software is contained within two dll files, identified as follows in the "About" screen:

HeaderDisplay.dll Version 1.0.0.10
HI710.dll Version 1.0.0.79

The dll files can only be accessed and modified via the secured switch on the A/D board. The files are protected by a checksum, any modification in the dll files will result in a change in the checksum value and an error being detected.

Access to the Windows operating system is password-protected and prevented during automatic operation.

**7.6** Having the Aplex Technology combined PC and LCD display type AHM-6127A (see section 2.2) replaced by the Aplex combined PC and LCD display type ARCHMI-812(P).

## 8 ILLUSTRATIONS

Figure 1 LI-700E (3 conveyors)
Figure 2 Operation touch screen display
Figure 3 Rating plate location
Figure 4 Rating plate
Figure 5 Cal/setup switch cover and sealing
Figure 6 DEL type 700 series labeller
Figure 7 DEL type LC series labeller

## 9 CERTIFICATE HISTORY

| ISSUE NO. | DATE | DESCRIPTION |
|---|---|---|
| UK/0126/0131 | 08 August 2012 | Type examination certificate first issued. |
| UK/0126/0131 rev 1 | 16 February 2015 | Section 7.5 added. |
| UK/0126/0131 rev 2 | 03 August 2015 | Section 7.6 added. |

**Figure 1 LI-700E (3 conveyors)**

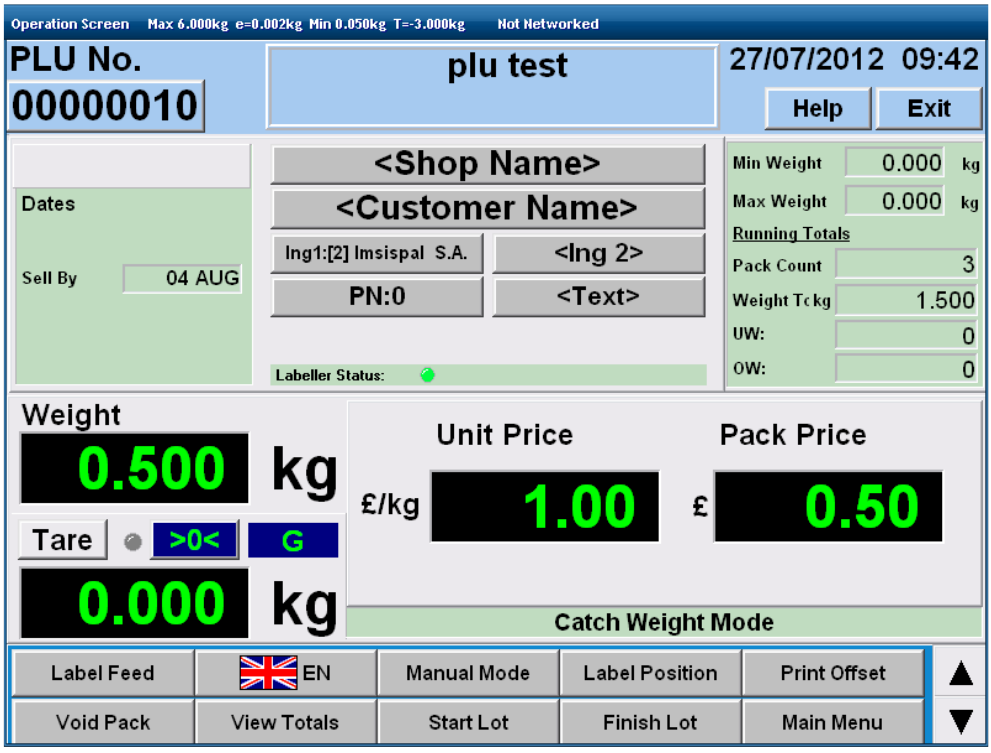


**Figure 2 Operation touch screen display**

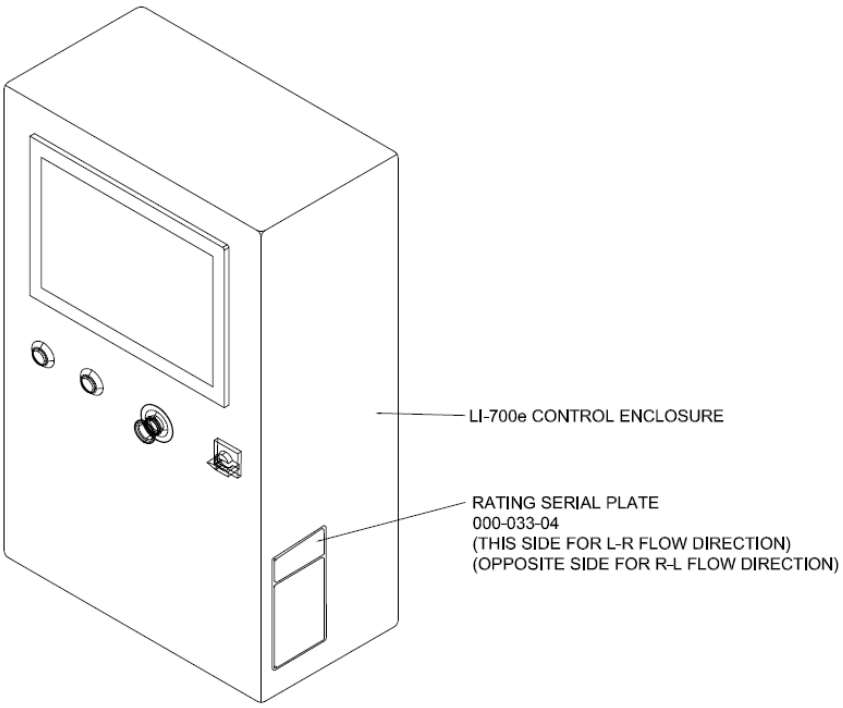


**Figure 3 Rating plate location**

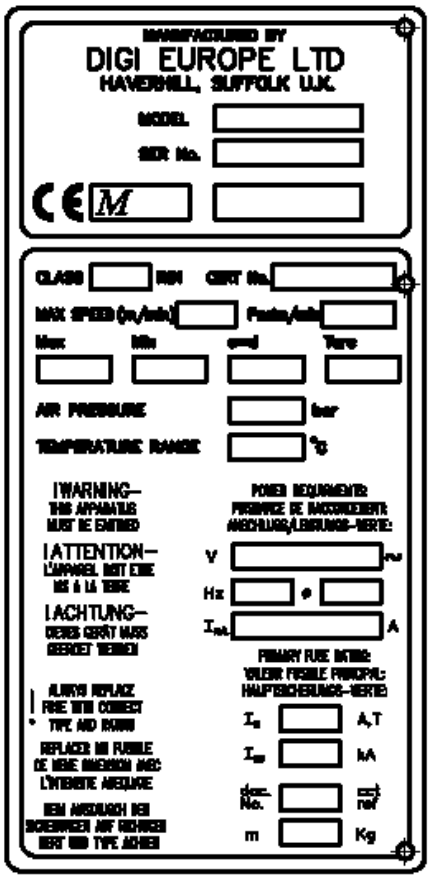


**Figure 4 Rating plate**

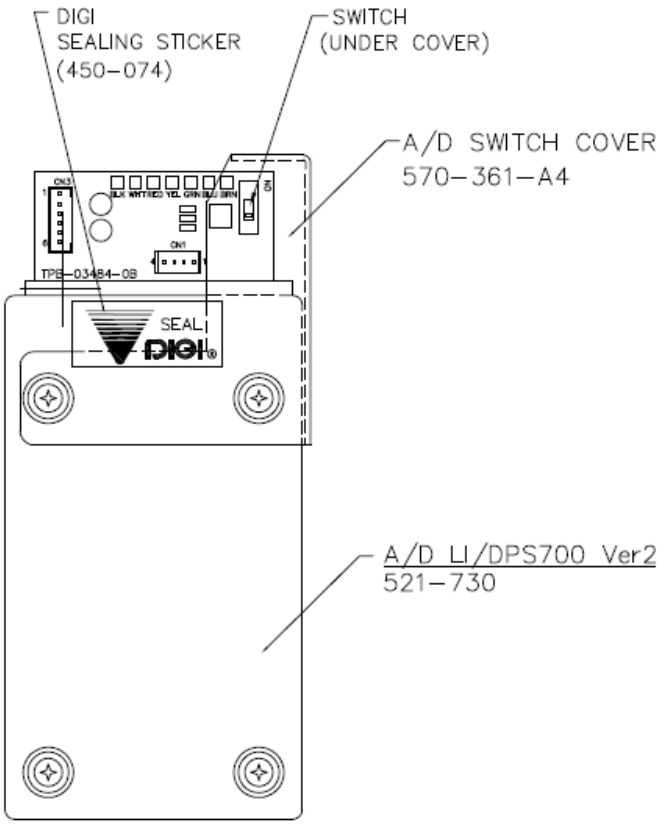


**Figure 5 Cal/setup switch cover and sealing**

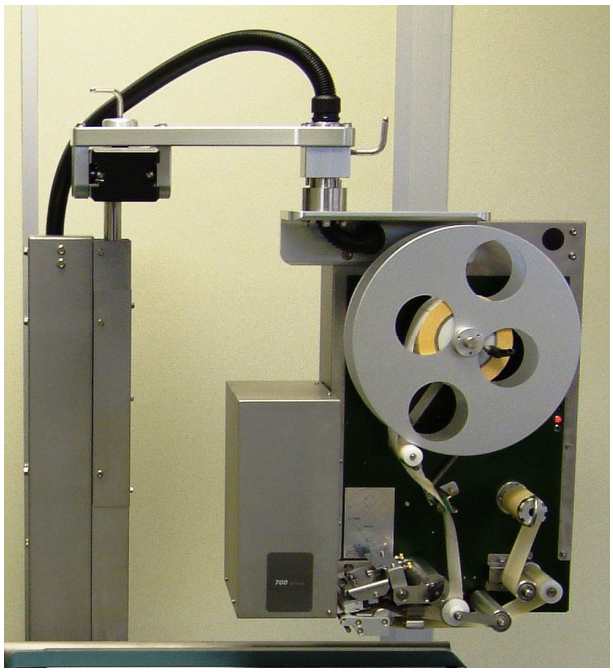

**Figure 6 DEL type 700 series labeller**

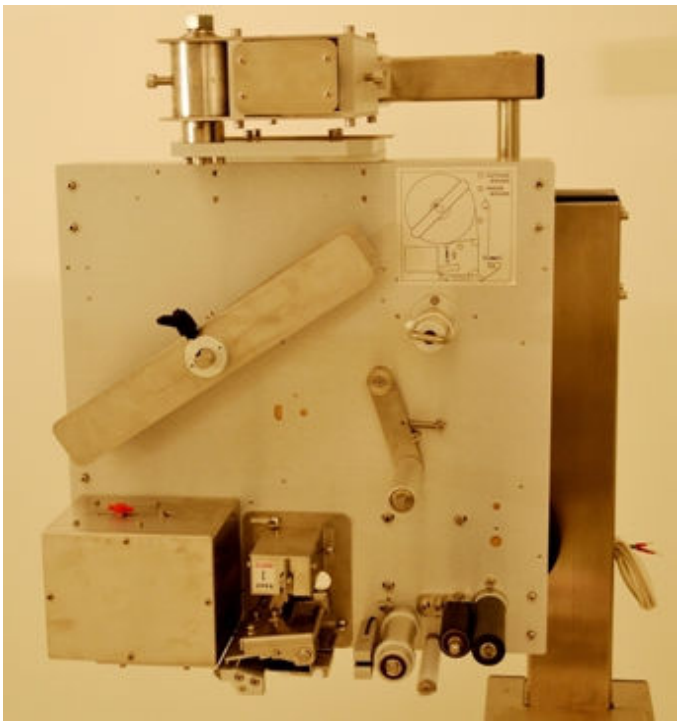

**Figure 7 DEL type LC series labeller**

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